

A missing link in predicting hurricane damage

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There's an old saying that generals always fight the last war. In communities hit by hurricanes, it could be said that governments often fight the last storm.

That situation is understandable. When a hurricane moves through a city, enormous amounts of data are collected about its path and any storm surge; other related flooding; or power outages. Each hurricane that passes through our coastal communities is followed by a series of "fixes" that draw from those past data to make our power plants and other key facilities more resilient. Yet what if such fixes aren't really fixes at all?

This is an important question for local governments, utilities and the military, which stands to lose 128 military bases to eroding coastlines, according to a 2016 report by the Union of Concerned Scientists. Knowing which mitigation strategies to pursue is critical for protecting communities and valuable assets—but it's not easy.

For example, after Hurricane Sandy devastated the Atlantic coast in 2012, resulting in some \$70 billion worth of damage and power outages for about eight million customers across 21 states, the Delaware Bay area's major utility spent billions of dollars to shore up electrical substations that were flooded by the storm's water surge. According to a model we've developed at Los Alamos National Laboratory, however, those fixes might not help when the next big storm hits.

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